AKAROA WASTEWATER – IRRIGATION OF TREATED WASTEWATER TO LAND

CONFERENCE OF TECHNICAL EXPERTS 30/11/16

JOINT STATEMENT

1. This is the joint statement of technical experts from a meeting on 30th of November 2016 at the Beca Office in Sydenham, Christchurch. Attendees were Greg Offer (Notes) and Paul Horrey from Beca, Andrew Brough from Pattle Delamore Partners (PDP), Andrew Dakers from ecoEng, and David Painter from David Painter Consulting.

2. The agreed statement on the broad issues listed in the meeting agenda (received by email from Brent Pizzey, senior solicitor at Christchurch City Council, at 10:22 on 30/11) is set out below.

3. WATER BALANCE MODEL

3.1. The water balance model developed by PDP for pasture irrigation at Robinsons Bay Valley and Takamatua Valley should be reviewed by Andrew Dakers and Andrew Brough. In particular the model input parameters should be evaluated in detail and updated as appropriate taking into account any refinements and also incorporating Long Term Acceptance Rate (LTAR) data.

3.2. Once the modelling approach is agreed and the pasture option modelling rerun, the water balance model should be extended to consider wastewater irrigation to trees, at Robinsons Bay Valley, Takamatua Valley, and parts of Takamatua Headland not previously excluded due to land stability risk.

3.3. The Wainui wastewater irrigation to land scheme has been used as a basis for the Akaroa irrigation to trees concept design. The technical experts wish to conduct a visit to the Wainui scheme to inspect the operation and make observations about the performance. This should take place before the water balance model is rerun.

3.4. As part of the modelling revisions, soil infiltration assumptions used in the model and in the scheme assessment should be reviewed by a soil scientist knowledgeable on Banks Peninsula soils, with a focus on soil profile anomalies such as less permeable layers or pans. The person nominated to perform this task is Trevor Webb. Depending on the opinion of the soil scientist further physical sampling of soils may be required.

3.5. The modelling should consider and report on interflow and surface ponding risks.

3.6. Following the revised modelling, it is recommended that the geotechnical assessment of land stability risk is reviewed in light of any changes in water passage through soils. The geotechnical reassessment should take into account the differences between pasture and tree irrigation in terms of realistic groundwater mounding effects and the comparative impacts on land stability (due to the different root structures).

4. EFFECTS OF IRRIGATING TREATED WASTEWATER

4.1. The technical experts are not in a position to respond to questions on the effect of irrigating treated wastewater at this stage other than in a general sense.

4.2. It is recommended that further work is done to assess specific effects in more detail once a preferred option and location(s) have been selected by Christchurch City Council.

5. OPERATION AND MAINTENANCE OF IRRIGATION SYSTEM

5.1. The technical experts are not in a position to respond to questions on operation and maintenance of the irrigation system at this stage other than in a general sense.

5.2. It is recommended that specific operational and maintenance aspects are considered in more detail once a preferred option and location(s) have been selected by Christchurch City Council.

6. FURTHER COMMENTARY: ON SELECTION OF LAND FOR IRRIGATION AND STORAGE

6.1. The technical experts wish to draw attention to the possibility that irrigation areas may not necessarily be confined to one location. The general principles that should apply are set out below.

6.2. Irrigation areas should generally be co-located where sufficient land area with soils that are suitable for year round irrigation is available within a single area.

6.3. However, in the event that sufficient and suitable land is not available in a single area, then land for irrigation across a wider extent could be selected. Factors to take into account include the land suitability and availability, lack of soil anomalies, and proximity to the wastewater piping main (ie. typically running north along State Highway 75 from the treatment plant site).

6.4. The same principle applies to wastewater storage. The wastewater storage pond or ponds may be located together with the irrigation land area, or potentially elsewhere if suitable sites that are generally aligned with the wastewater pipeline can be identified.

6.5. The technical experts understand that the community has concerns about the impacts of wastewater storage ponds (including visual, odour, insects, resilience to natural hazards). These concerns can be addressed by design measures, by seeking a location that maximises the distance to private dwellings, and by locating the pond(s) such that viewpaths from public access areas including roads and reserves, and from private dwellings, are minimised.

6.6. In addition to mitigation by location, storage ponds should also be screened by use of boundary plantings and naturalised by planting the embankments.

7. ACTION PLAN AND TIMETABLE

7.1. Meeting between Andrew Dakers and Andrew Brough to discuss soil moisture balance modelling on 6th December.

7.2. Visit to the Wainui land irrigation scheme to take place preferably on the 7th or 8th of December.

7.3. Hydraulic modelling to be updated by PDP, date to be confirmed after meeting in item 7.1 above.

7.4. Geotechnical assessment to be revised by CH2M Beca and adjusted for trees vs pasture by 28th of January 2017.

Signed by ……

Date…….1/12/16…..

On behalf of;

The technical experts;

Greg Offer and Paul Horrey from Beca,

Andrew Brough from PDP,

Andrew Dakers from ecoEng,

David Painter from David Painter Consulting.